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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,785	12/20/2004	Fritz Gyger	P/1336-192	3129

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EXAMINER	
KASTURE, DNYANESH G	
ART UNIT	PAPER NUMBER
3746	
MAIL DATE	DELIVERY MODE
07/24/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/518,785	GYGER, FRITZ	
	Examiner	Art Unit	
	DNYANESH KASTURE	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 April 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *42-47,49 and 50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *42-47,49 and 50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 December 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 3, 2009 has been entered.

Claim Rejections - 35 USC § 112

2. The previously made 112 2nd paragraph rejections to Claims 42, 43, 44 and 46 are hereby withdrawn in view of amendments to the claims submitted on April 3, 2009.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 45 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. In Re Claim 45, the second pair of sealing surfaces has not been mentioned therefore the third pair of sealing surfaces lacks antecedent basis.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 42 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leka et al (US Patent 4,453,898 A) and in view of Reddy (US Patent 3,537,731 A)

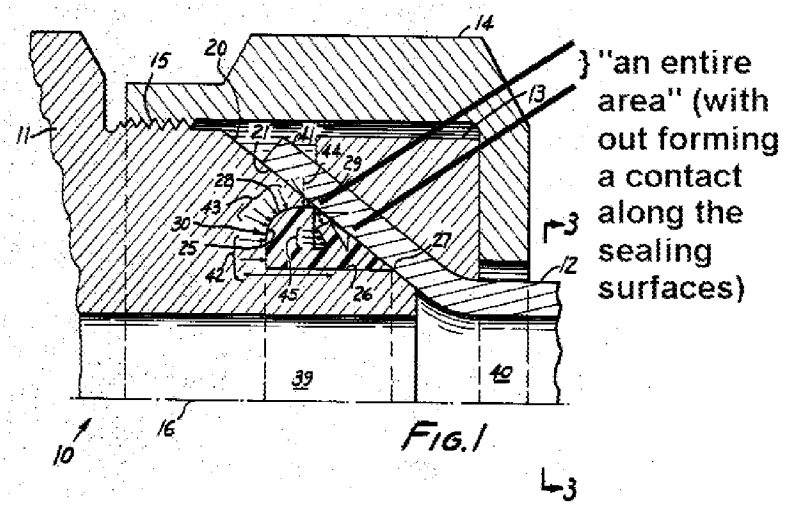


Fig. 1

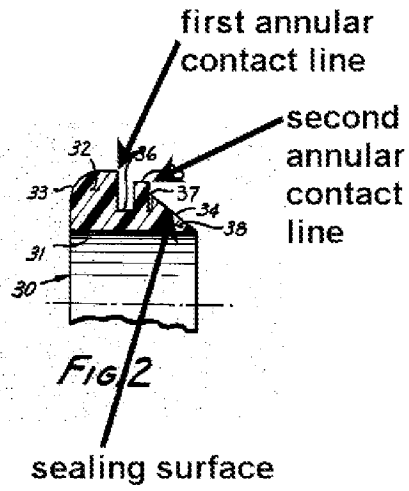


Fig 2

8. In Re Claims 42 and 50, Leka et al discloses a pump for delivering precisely determined, small liquid flows under high pressure (pump assembly shown in figure 1, and check valve bores shown in Figure 3), the pump comprising:

- at least one pump device including a displacement chamber (piston cylinder 86), at least one working medium access bore formed in the displacement chamber and a piston (piston end 30) that is movable in the displacement chamber;
- a detachable connecting assembly positioned at the working medium access bore (including check valve fitting 72 and conventional end connection 74),

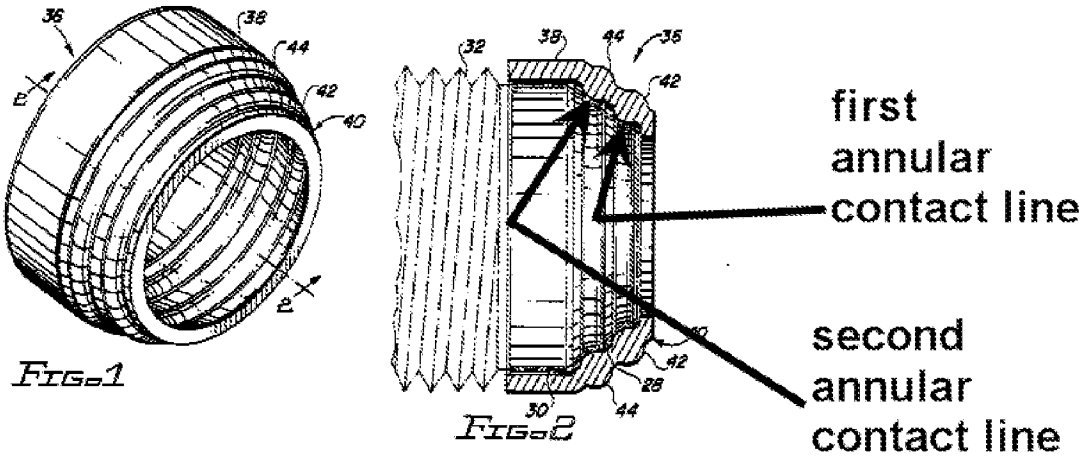
9. However, Leka et al does not disclose a plurality of annular contact lines on at least one of the first and second sealing surfaces.

10. Nevertheless, Reddy discloses seal for a tubing joint comprising detachable connecting assembly (11, 12) the connecting assembly including a first pair of sealing surfaces having a first sealing surface (20, 34) and a second sealing surface (21), the first sealing surface (20) being dome-shaped and convex as depicted and the second sealing surface being concave conical as depicted and non-complementary (in an area of the seal, for details of the seal, see Figure 2) to the first sealing surface,

- at least one of the first and second sealing surfaces having a concentrically stepped surface (35, 32) forming a plurality (at least two as annotated above) of annular contact lines with the other sealing surface without forming a contact along an entire area of either one of the sealing surfaces (see annotations), and the sealing surfaces having respective central openings (31, 40) defining a channel connected to the working medium access bore (39)

11. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the end of the threaded portion of the end connection (74) of Leka et al so it has a some shaped convex shape with a seal that contacts the concave conical surface at the inlet passage (88) of Leka et al as taught by Reddy as an alternate design choice for a fitting that is compact and reduces complexity by mounting the seal flush with the connector.

12. Alternatively, Claims 42 & 50 and Claim 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leka et al (US Patent 4,453,898 A) and in view of Swauger (US Patent 5,503,438 A)



13. In Re Claims 42 and 50, Leka et al discloses a pump for delivering precisely determined, small liquid flows under high pressure (pump assembly shown in figure 1, and check valve bores shown in Figure 3), the pump comprising:

- at least one pump device including a displacement chamber (piston cylinder 86), at least one working medium access bore formed in the displacement chamber and a piston (piston end 30) that is movable in the displacement chamber;
- a detachable connecting assembly positioned at the working medium access bore (including check valve fitting 72 and conventional end connection 74),

14. However, Leka et al does not disclose a plurality of annular contact lines on at least one of the first and second sealing surfaces.

15. Nevertheless, Swauger discloses a tube coupling having a first pair of sealing surfaces having a first sealing surface (28) and a second sealing surface (40), the first

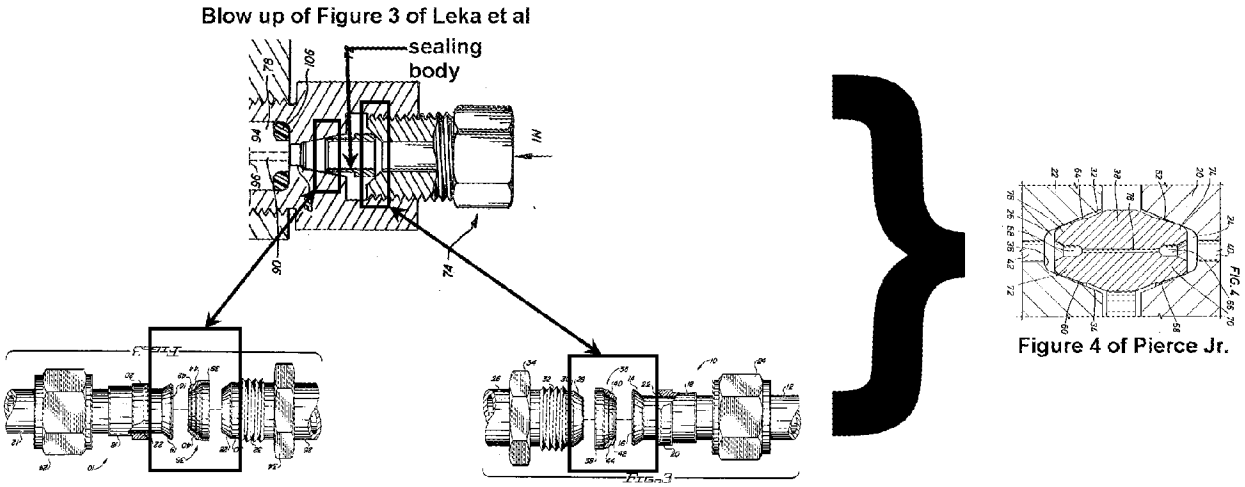
sealing surface being dome-shaped and convex as depicted and the second sealing surface being concave conical as depicted and non-complementary (Figure 4) to the first sealing surface,

- at least one of the first and second sealing surfaces having a concentrically stepped surface (42, 44) forming a plurality (at least two as annotated above) of annular contact lines (Since surface 28 is tangential to the integrally formed O-Rings 42 and 44) with the other sealing surface without forming a contact along an entire area of either one of the sealing surfaces, and the sealing surfaces having respective central openings (as depicted) defining a channel connected to the working medium access bore (26).

16. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the end of the threaded portion of the end connection (74) of Leka et al so it has a some shaped convex shape that contacts the concave conical surface at the inlet passage (88) of Leka et al through an intermediate sealing boot (36) as taught by Swauger as an alternate design choice for a fitting that reduces complexity as stated in Column 1, Lines 55-58 of Swauger.

17. In Re claim 43, Swauger discloses embedded O-Ring seals interposed between the first and second sealing surfaces.

18. Claims 44 - 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leka et al (US Patent 4,453,898 A) and in view of Swauger (US Patent 5,503,438 A) and as extrinsically evidenced by Pierce, Jr. (US Patent 4,410,186 A)



19. In Re Claim 44, Leka et al discloses the unlabelled interposing element annotated above which is modified by Swauger to be the sealing body as claimed. Leka et al as applied to Claim 42 does not disclose a plurality of annular contact lines on at least one of the first and second sealing surfaces.

20. Nevertheless, Swauger discloses the sealing boot with two annular contact lines as discussed above.

21. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the two conical surfaces in the block (72) of Leka et al on either side of the annotated sealing body so they have a boot with at least two annular contact lines each as taught by the sealing boot of Swauger and modify the sealing body of Leka et al at both ends so that each end has a corresponding sealing surface (28) that engages the two annular contact lines as taught by Swauger as an alternate

design choice for a fitting that reduces complexity as stated in Column 1, Lines 55-58 of Swauger. The modified sealing body would resemble the cross section (38) of Pierce Jr. (Figure 4) cited as extrinsic evidence. Note that it has been held that a mere duplication of essential working parts (of the sealing surface of the boot with two annular contact lines) of a device involves only routine skill in the art (MPEP – 2144.04 (VI-B)).

22. With regards to the highly pressure resistant synthetic material limitation, Leka et al. do teach that several of the components of the pump, most notably the check valve balls (96, 100) are made from a highly pressure resistant synthetic ruby. It would have been obvious to one of ordinary skill in the art at the time of invention to form the aligning components and through bores out of the same synthetic ruby in order to make the pump durable and able to withstand very high pressures.

23. In Re Claim 45 as best understood, Swauger discloses sealing surfaces on the inside and outside of the boot. The mating surfaces (28) and (14) on either side of the boot are parts of the first and second pairs of sealing surfaces. Since the boot teachings are replicated on both sides of the annotated sealing body of Leka et al, an additional third and fourth pair of sealing surfaces is disclosed.

24. In Re Claim 46, Leka et al. teach the pump according to claim 42 (see the rejection of claim 42 above), wherein the connecting assembly comprises a first connecting body having a first contact surface (connector (74) with conical connecting surface), the connecting assembly further comprising a second connecting body having

a second contact surface contacting the first contact surface (the aligning component and its lower contact rim), the second connecting body having one of the first and second sealing surfaces formed thereon (the aligning component has two dome shaped sealing rims on it) such that the second connecting body is disposed between the second contact surface and the other sealing surface formed on the second connecting body (the aligning body is formed between two separate sets of contact surfaces); the connecting assembly further comprising a duct for the working medium, the duct being fixedly connected to the second connecting body and communicating with the channel having the central opening located at the sealing surface of the second connecting body (each connecting component has a bore through its center, to allow liquid to flow into the pump).

25. In Re Claim 47, Leka et al. teach the pump according to claim 46 (see the rejection of claim 46 above), wherein the contact surfaces are cambered (each contact surface is rounded) and complementary to each other to center the contact surfaces with respect to each other (the contact surfaces are complementary in the sense that one fits inside of the other)

26. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leka et al (US Patent 4,453,898 A) in view of Reddy (US Patent 3,537,731 A) and as

extrinsically evidenced by Pierce, Jr. (US Patent 4,410,186 A) and further in view of Yotam et al (U.S. Patent 4,595,495 A)

27. Leka et al. teach a first pump device each according to the pump of claim 46 (see the rejection of claim 46 above) comprised of a displacement chamber, but do not teach a second pump device downstream of the first pump device that is operable as a storage device of pulsation of the first pump device.

28. Yotam et al. teach a pump device with multiple cylinder bodies (59, 69, and 75) and multiple pistons (58, 68, and 74) arranged in series (see figure 7) in such a way that the outlet of one pump is connected to the inlet of another pump.

29. It would have been obvious to one of ordinary skill in the art at the time of invention to connect several of the pumps disclosed by Leka et al. in series as taught by Yotam et al. in order to discharge fluid at a higher pressure or to ensure that the fluid is discharged at a constant pressure. When multiple piston pumps are arranged in series as taught by Yotam et al., the pump stages downstream of the first pump stage would act to store pulsation from the first pump stage.

Response to Arguments

30. Applicant's arguments with respect to all the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

31. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

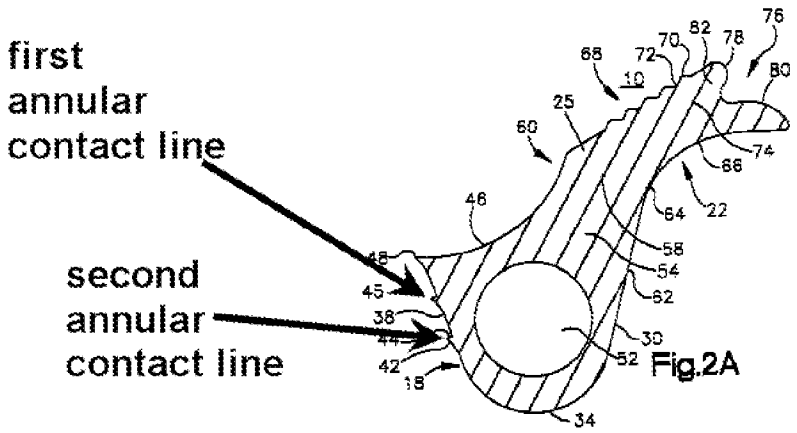


Figure 2A of Knapp

Knapp (US Patent 6,336,640 B1) discloses another sealing surface with a plurality of annular contact lines.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DNYANESH KASTURE whose telephone number is (571)270-3928. The examiner can normally be reached on Mon-Fri, 9:00 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272 - 7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art Unit 3746

DGK